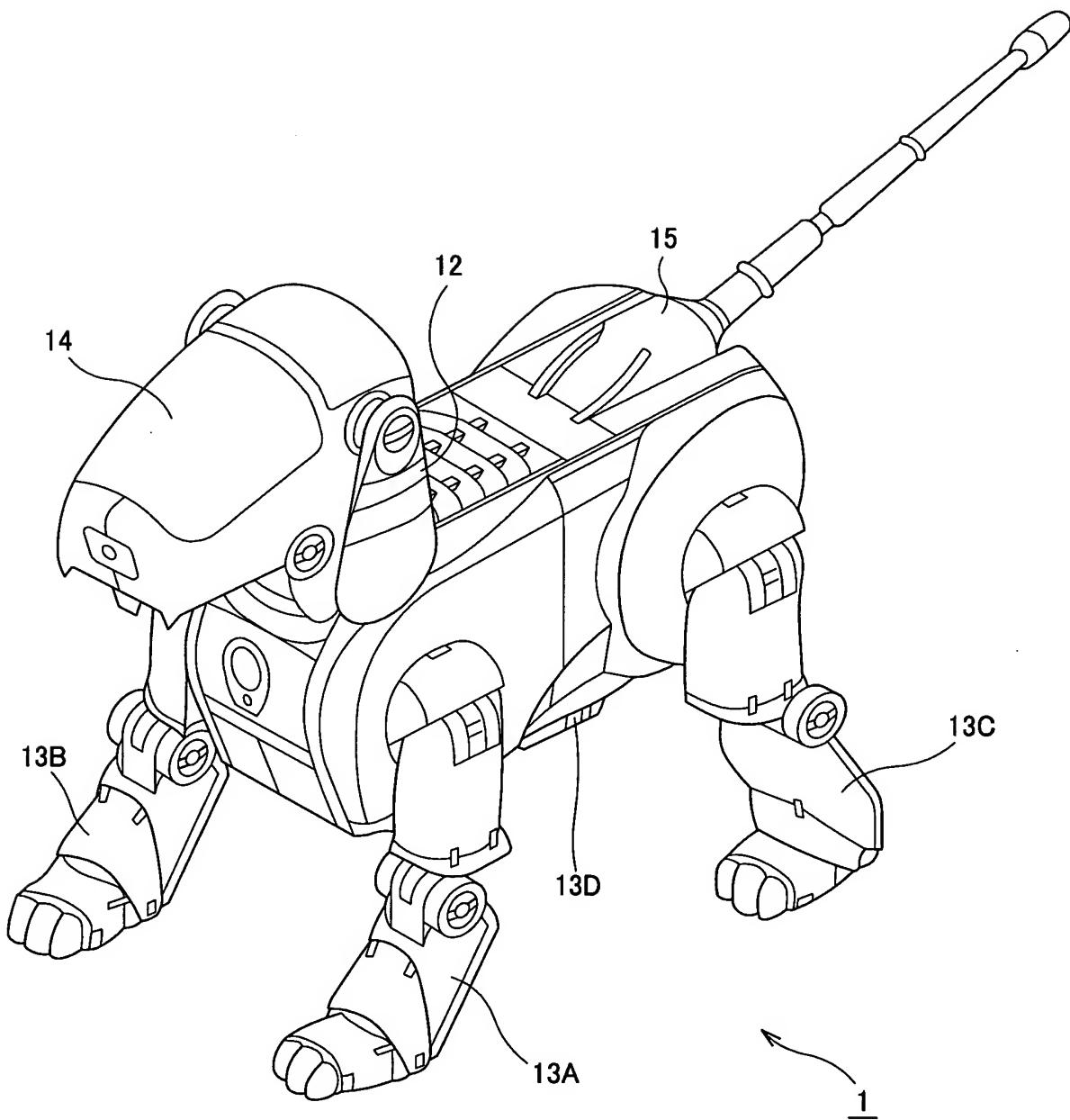
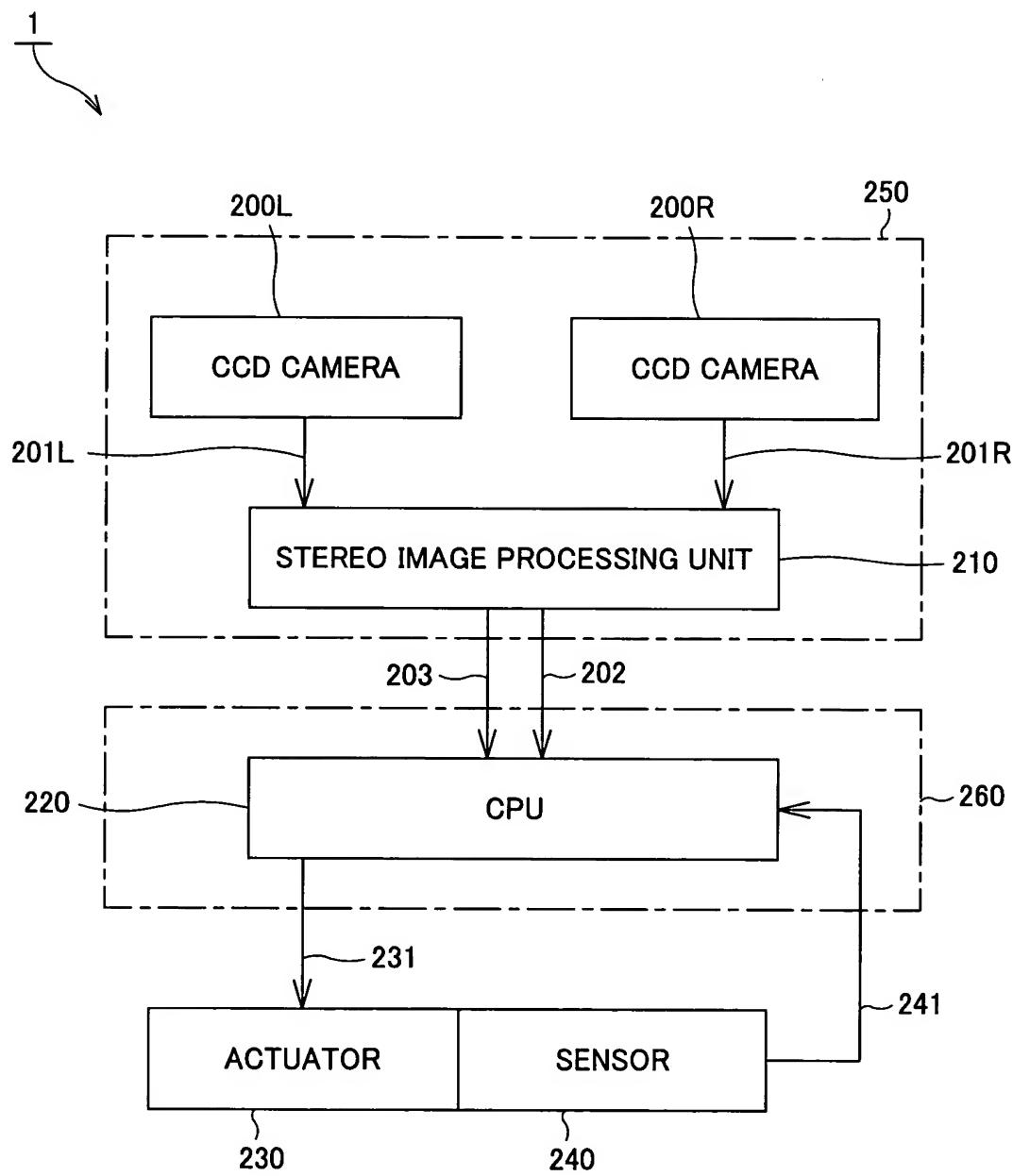
**FIG. 1**

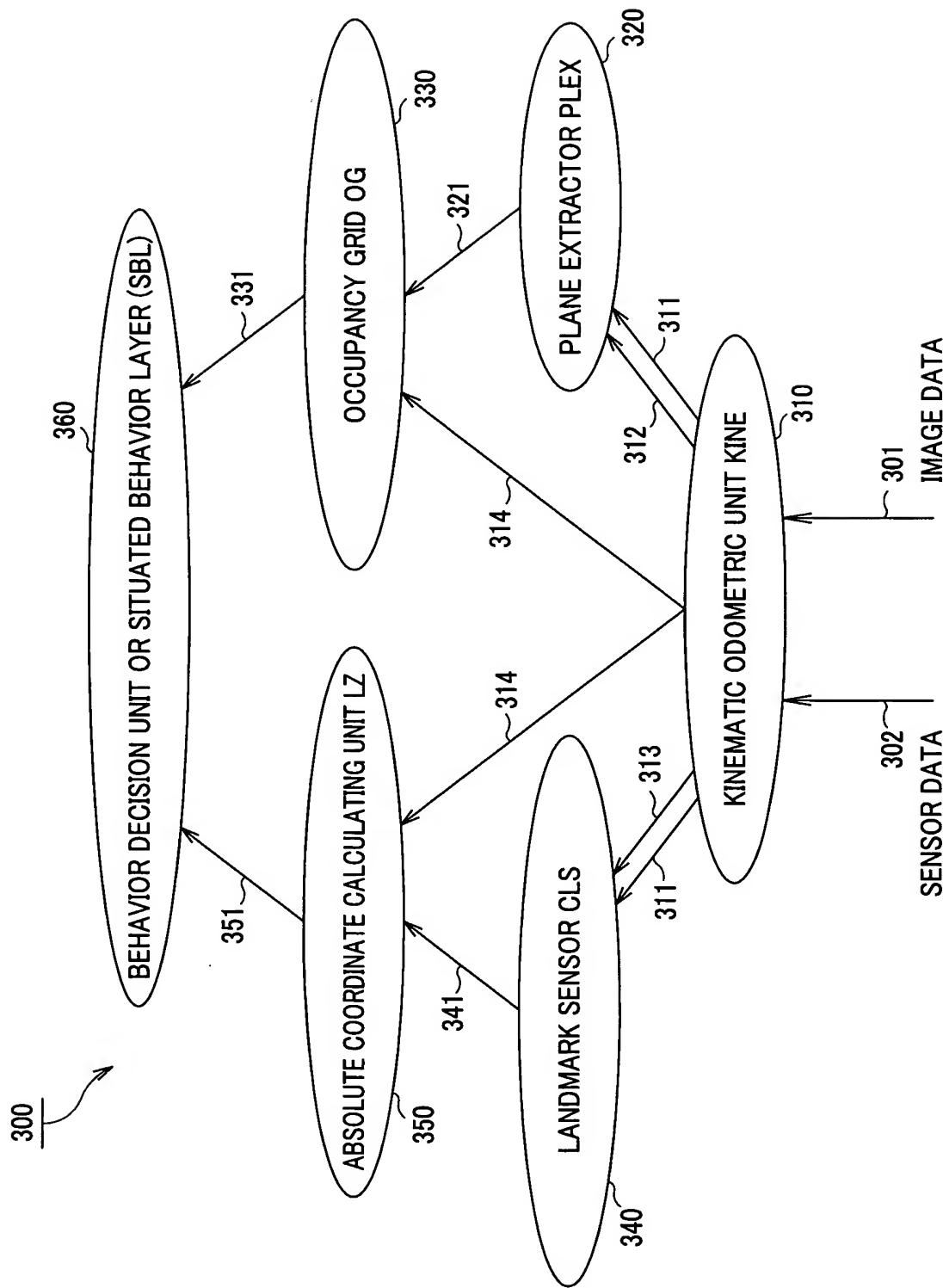


**FIG.2**

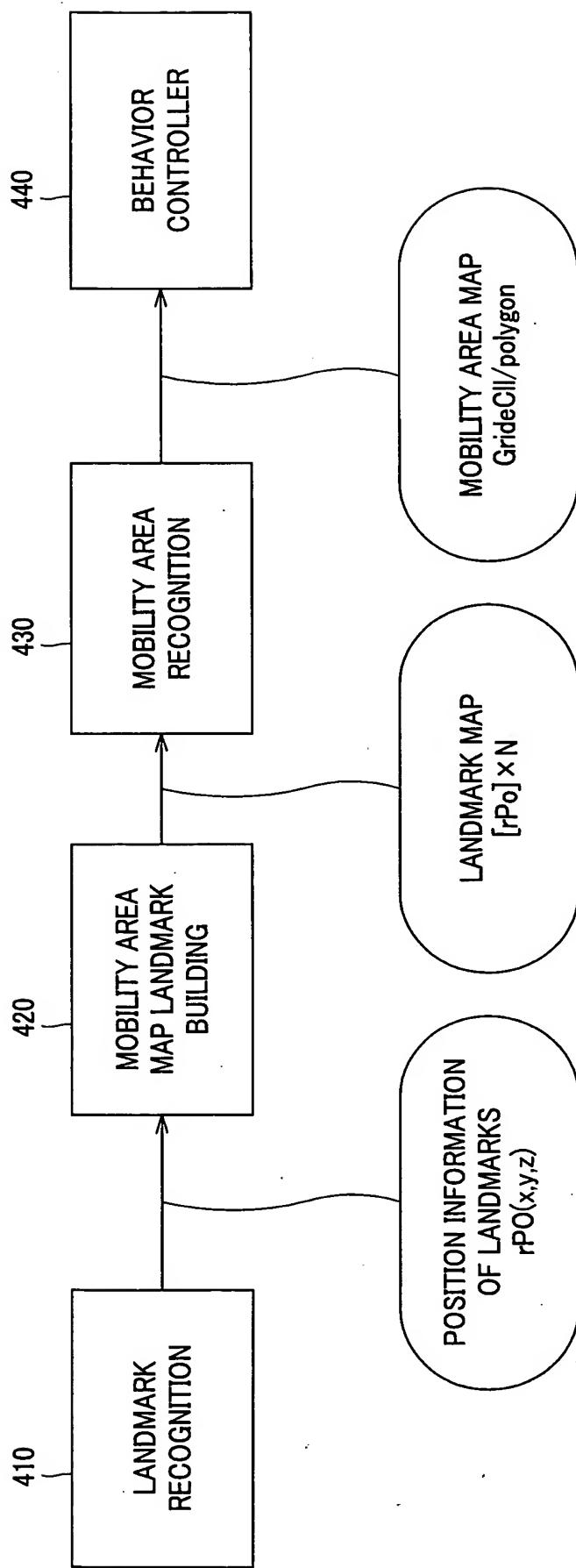


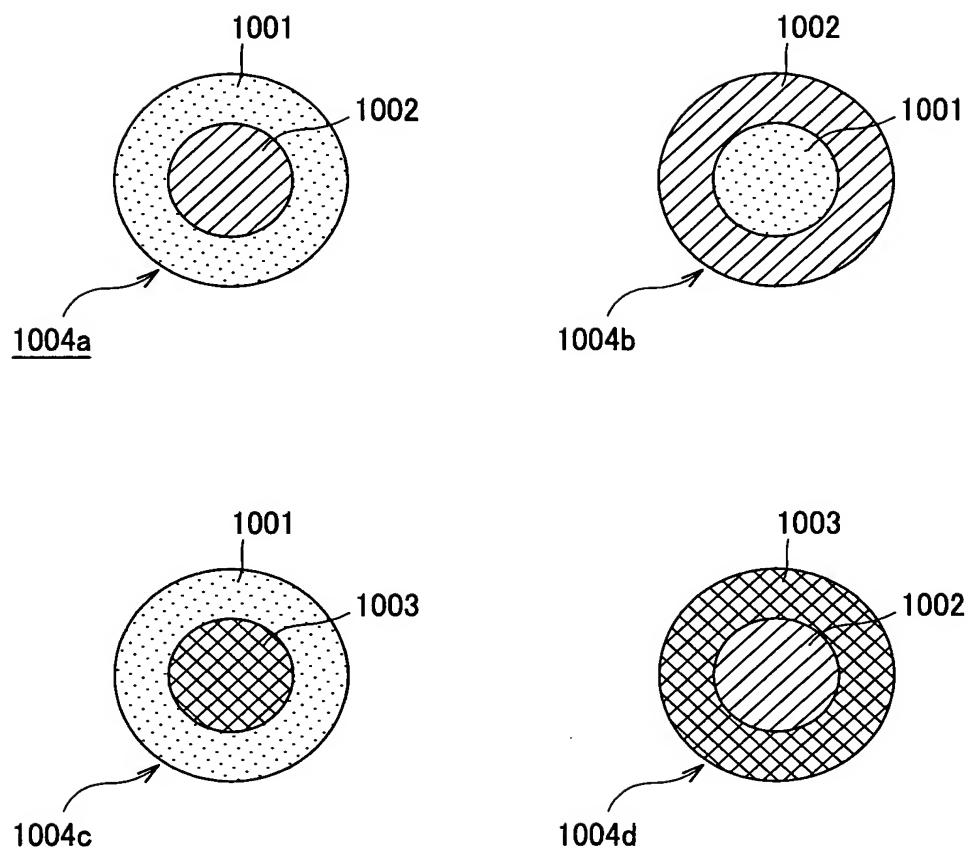
**FIG.3**

**FIG. 4**

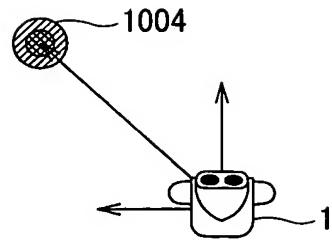


**FIG. 5**



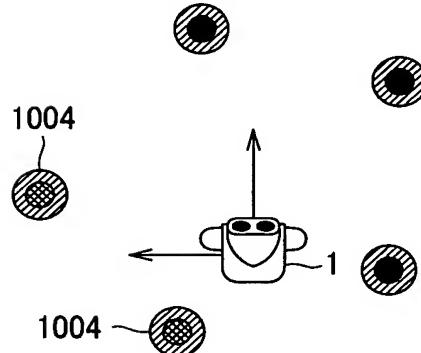


**FIG.6**



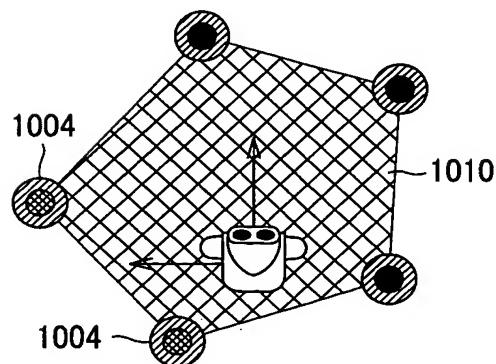
Landmark Information

**FIG.7A**



Landmark Map

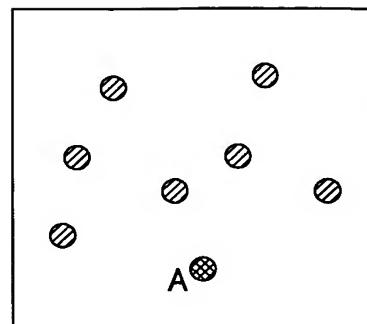
**FIG.7B**



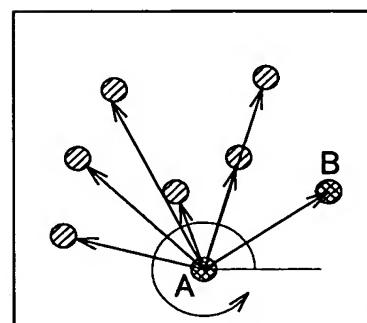
Mobility Map

**FIG.7C**

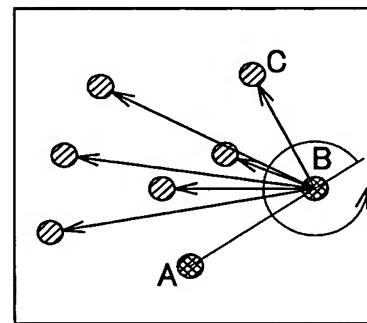
**FIG.8A**



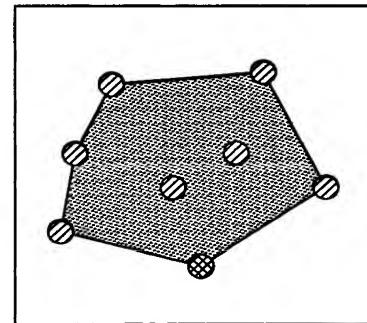
**FIG.8B**

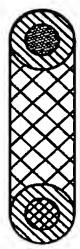


**FIG.8C**

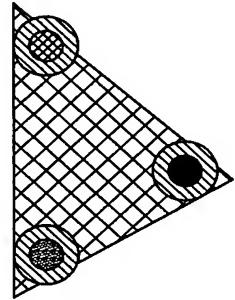


**FIG.8D**

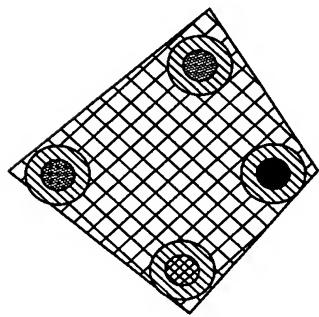




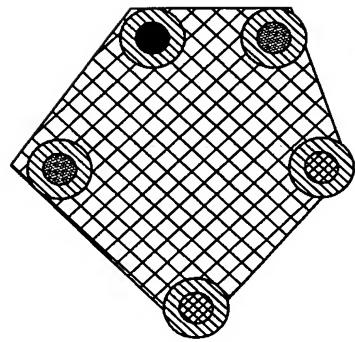
**FIG. 9A**



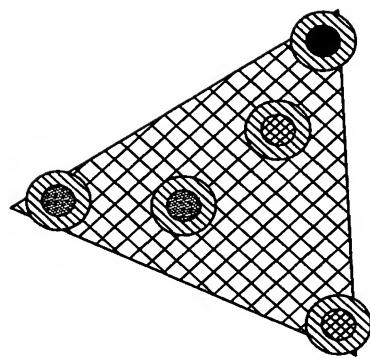
**FIG. 9B**



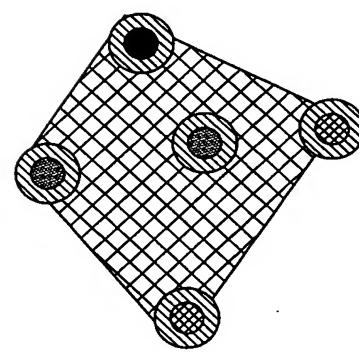
**FIG. 9C**



**FIG. 9D**



**FIG. 9E**



**FIG. 9F**

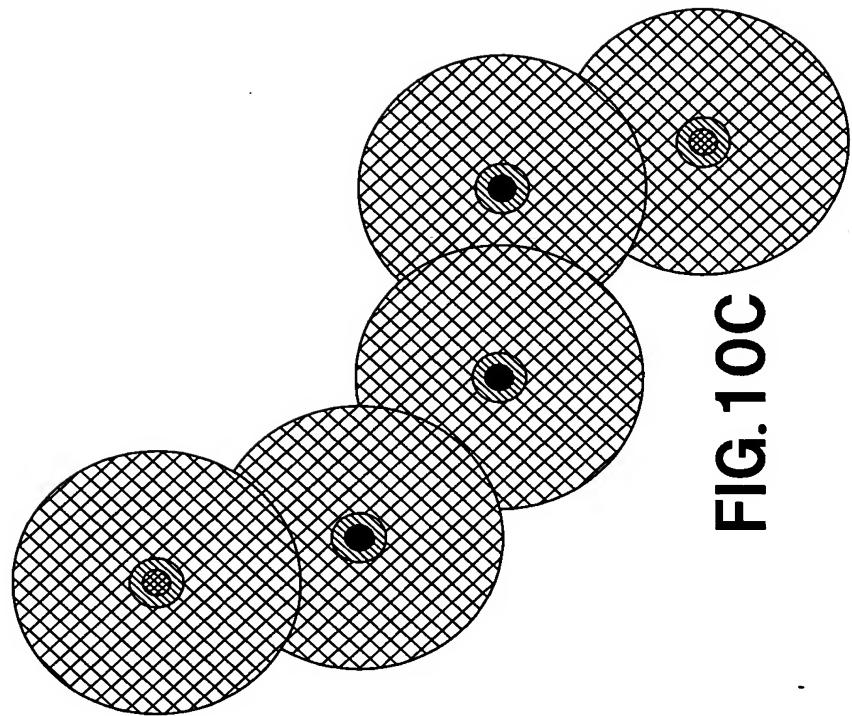


FIG. 10C

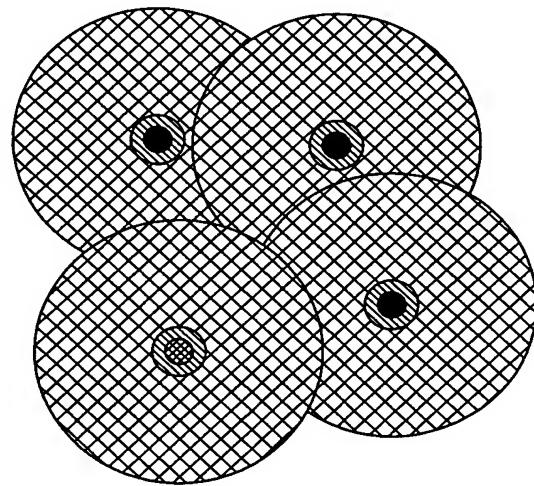


FIG. 10B

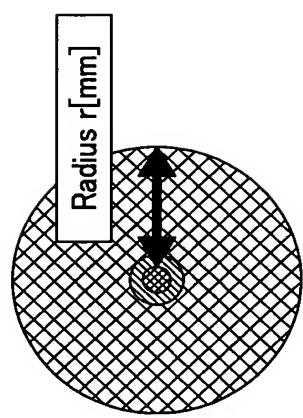
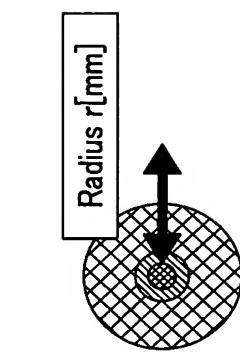
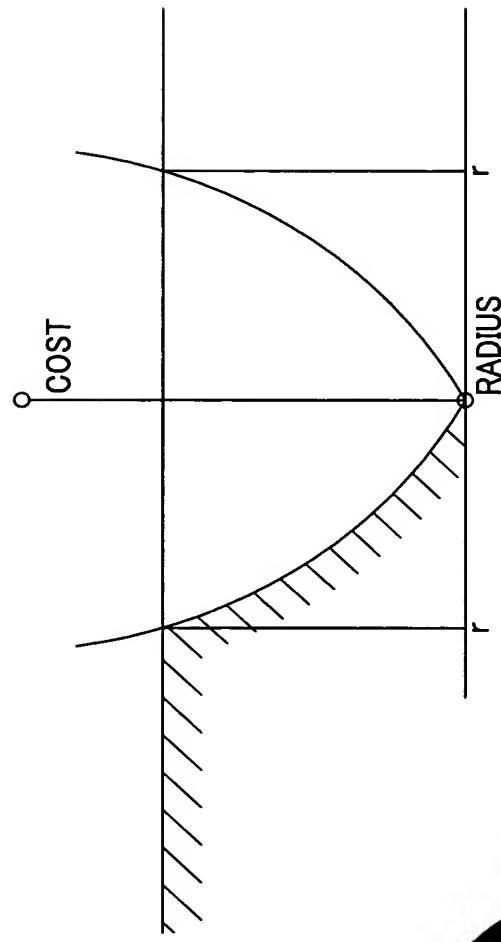


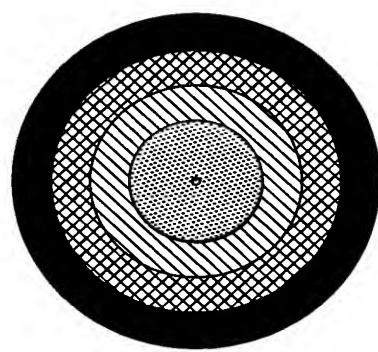
FIG. 10A



**FIG. 11A**

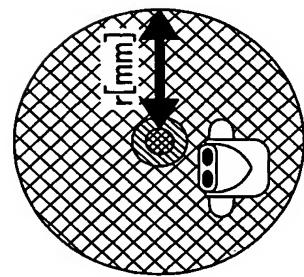


**FIG. 11B**



**FIG. 11C**

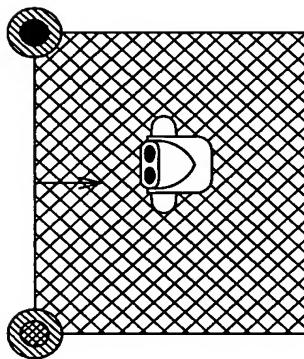
N=1



AREA METHOD

**FIG. 1 2A**

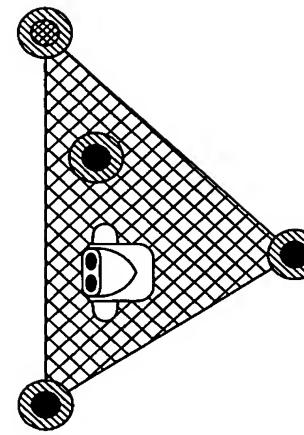
N=2



ROBOT SIDE

**FIG. 1 2B**

N>2

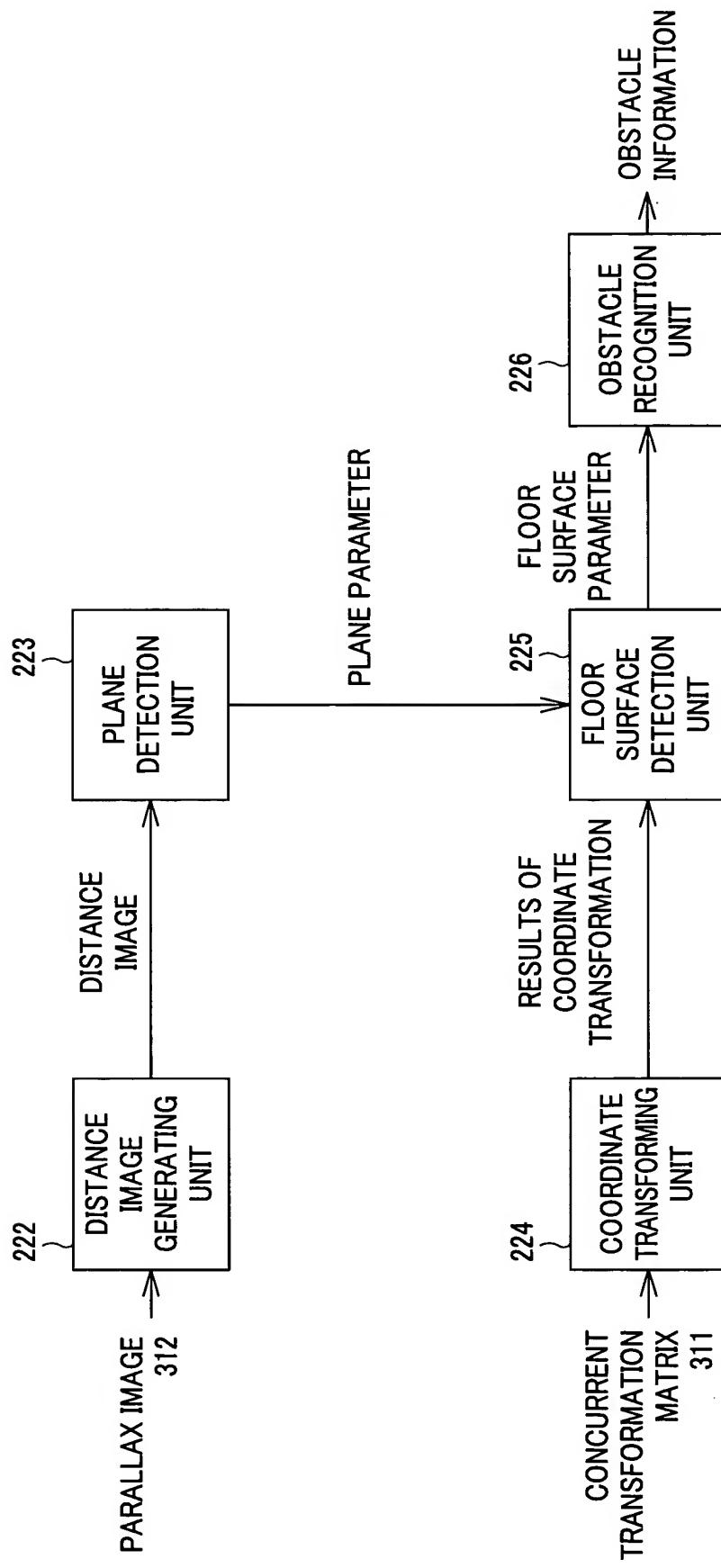


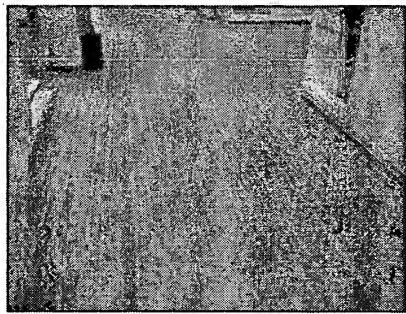
CONVEX CLOSURE

**FIG. 1 2C**

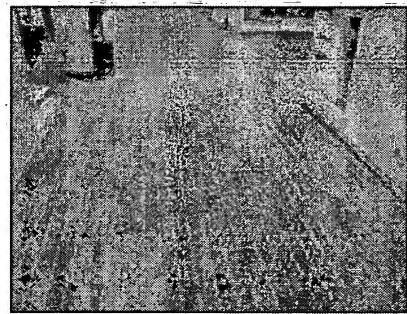
**FIG. 13**

221 OBSTACLE RECOGNITION DEVICE



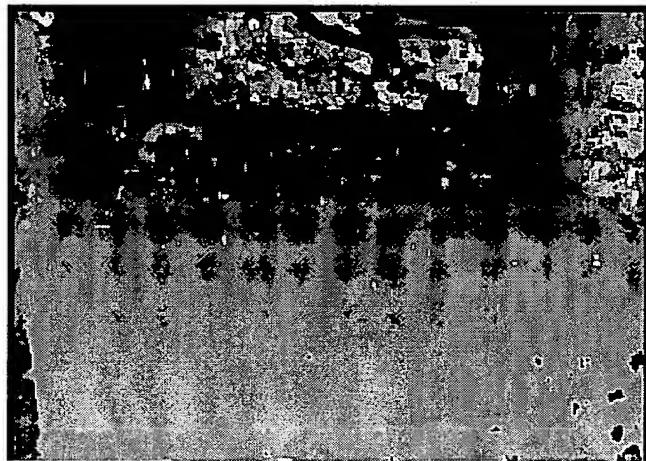


201L LEFT-EYE IMAGE

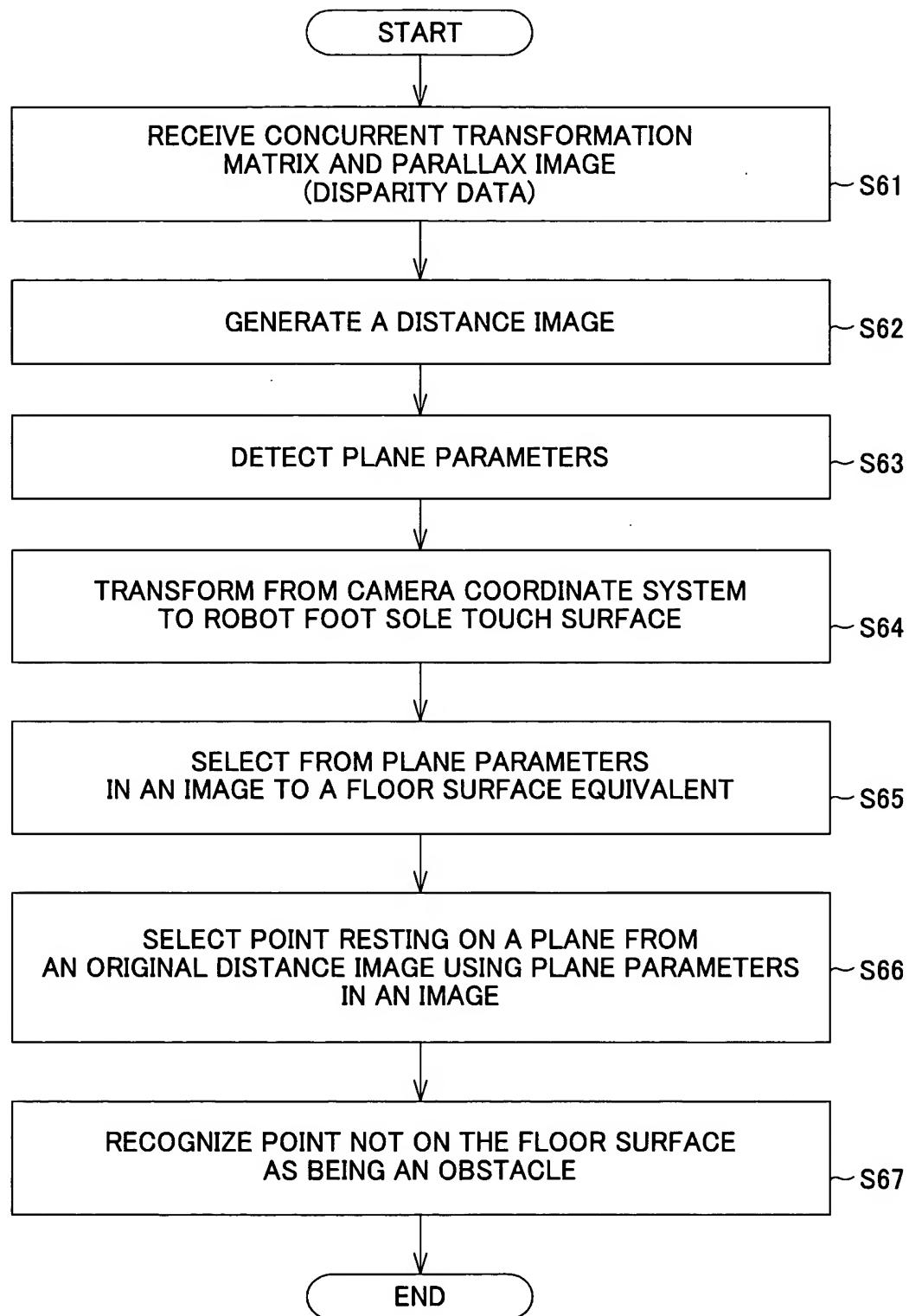


201R RIGHT-EYE IMAGE

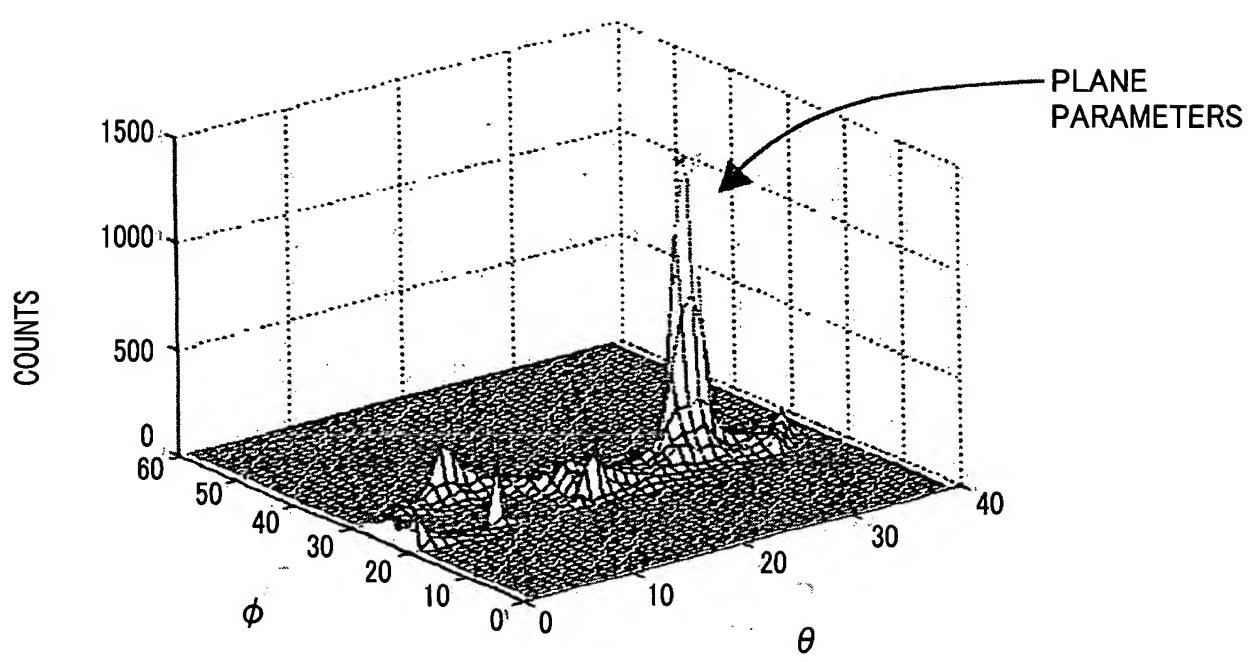
312 PARALLAX IMAGE



**FIG. 14**

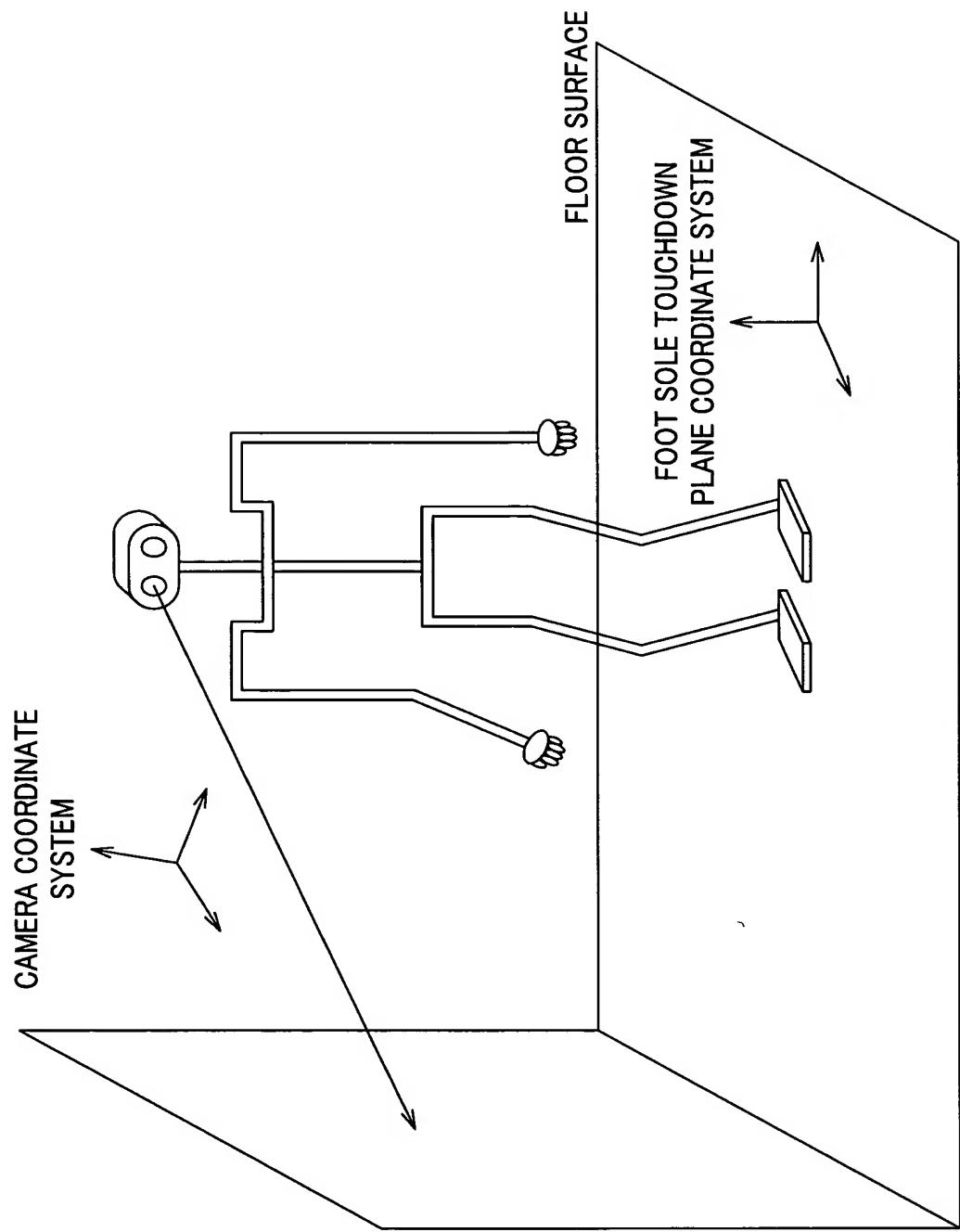


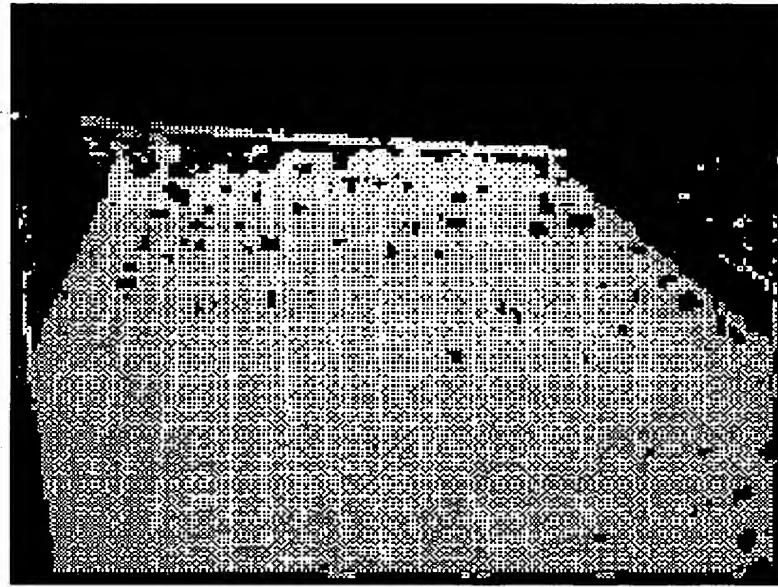
**FIG. 15**



**FIG. 16**

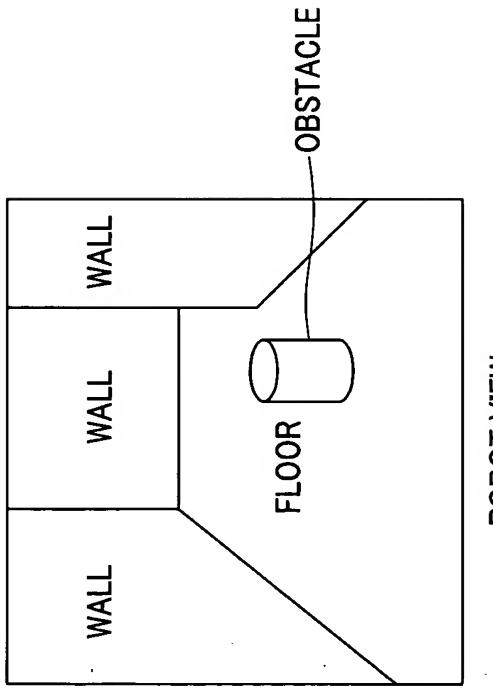
**FIG. 17**



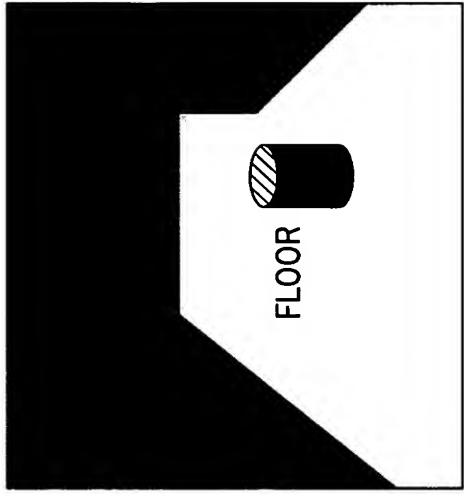


Dth=10mm

**FIG. 18**



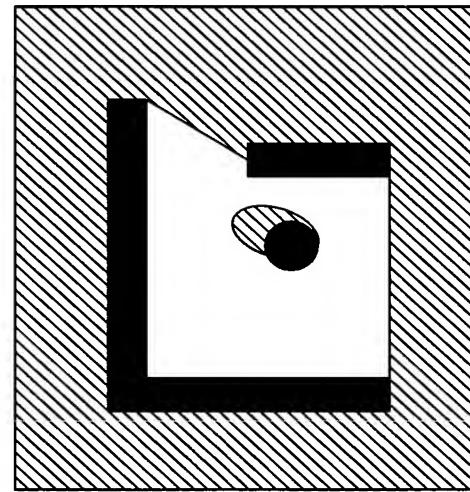
ROBOT VIEW



FLOOR SURFACE EXTRACTION

FIG. 19A

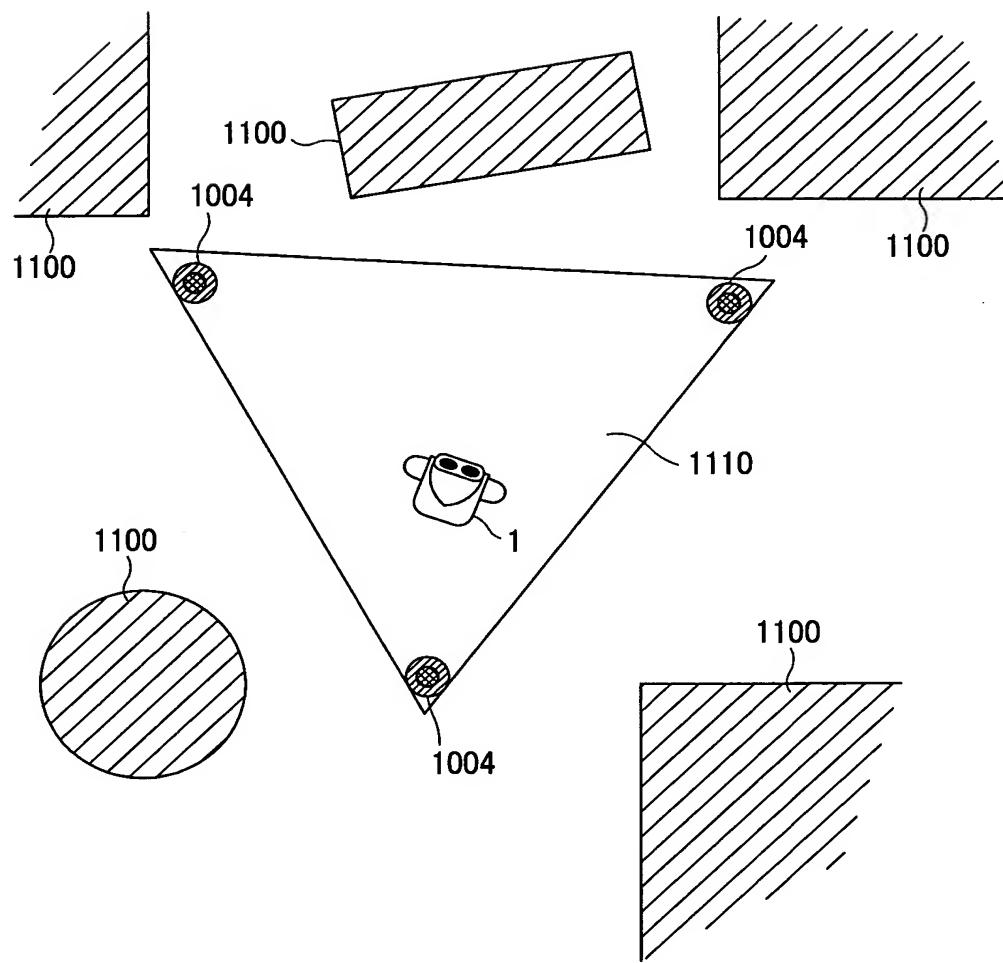
FIG. 19B



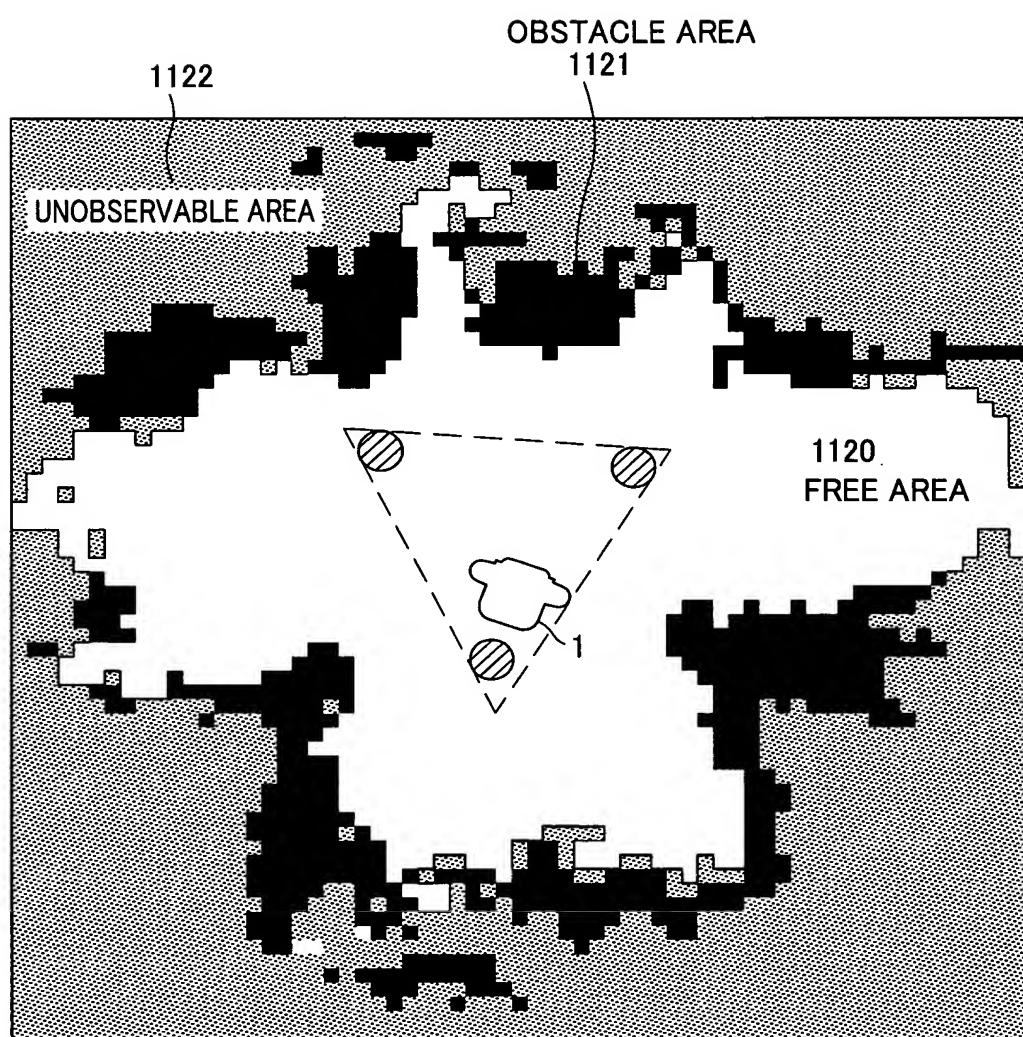
COORDINATE TRANSFORMATION

EXPRESSION ON FLOOR SURFACE

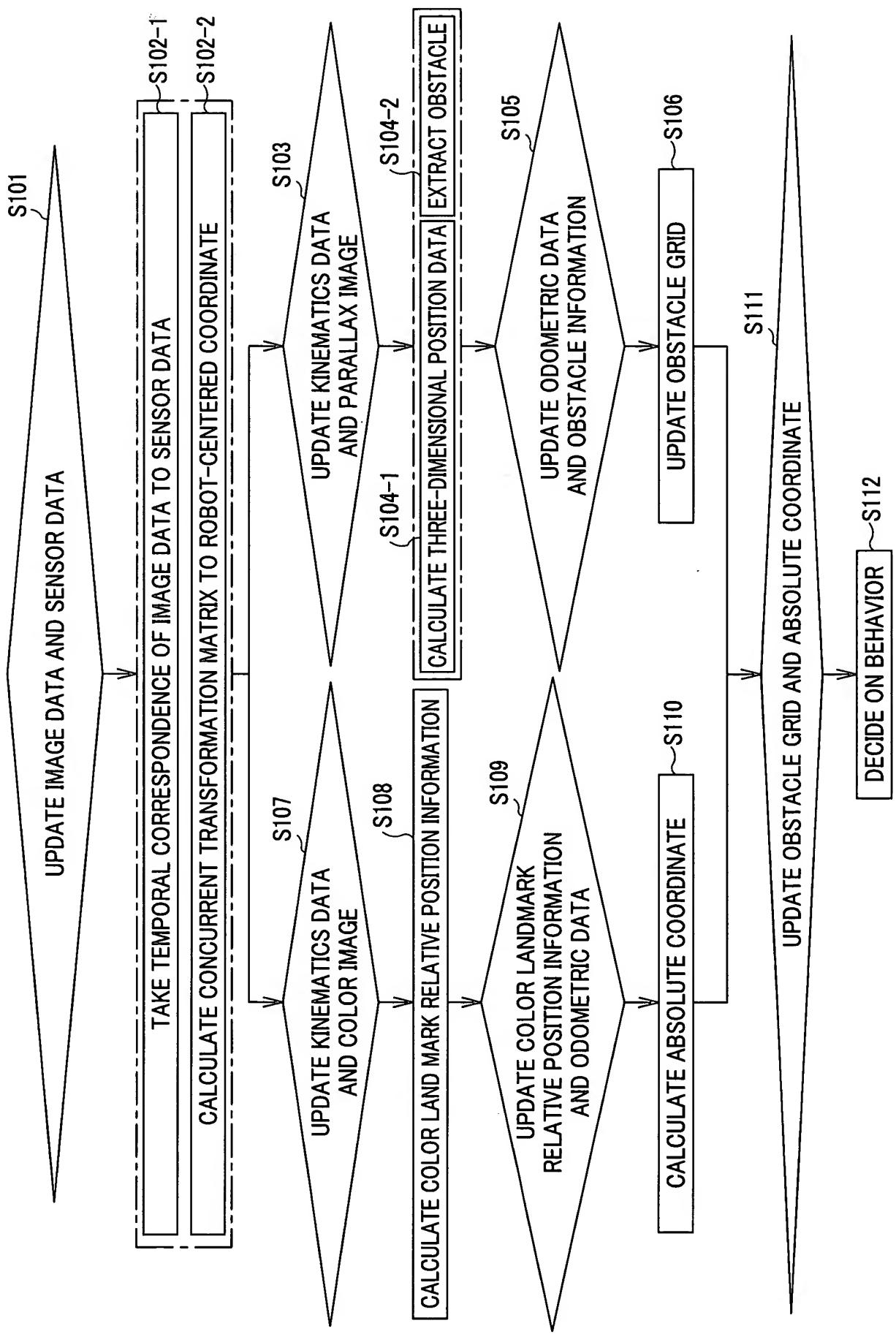
FIG. 19C



**FIG.20**

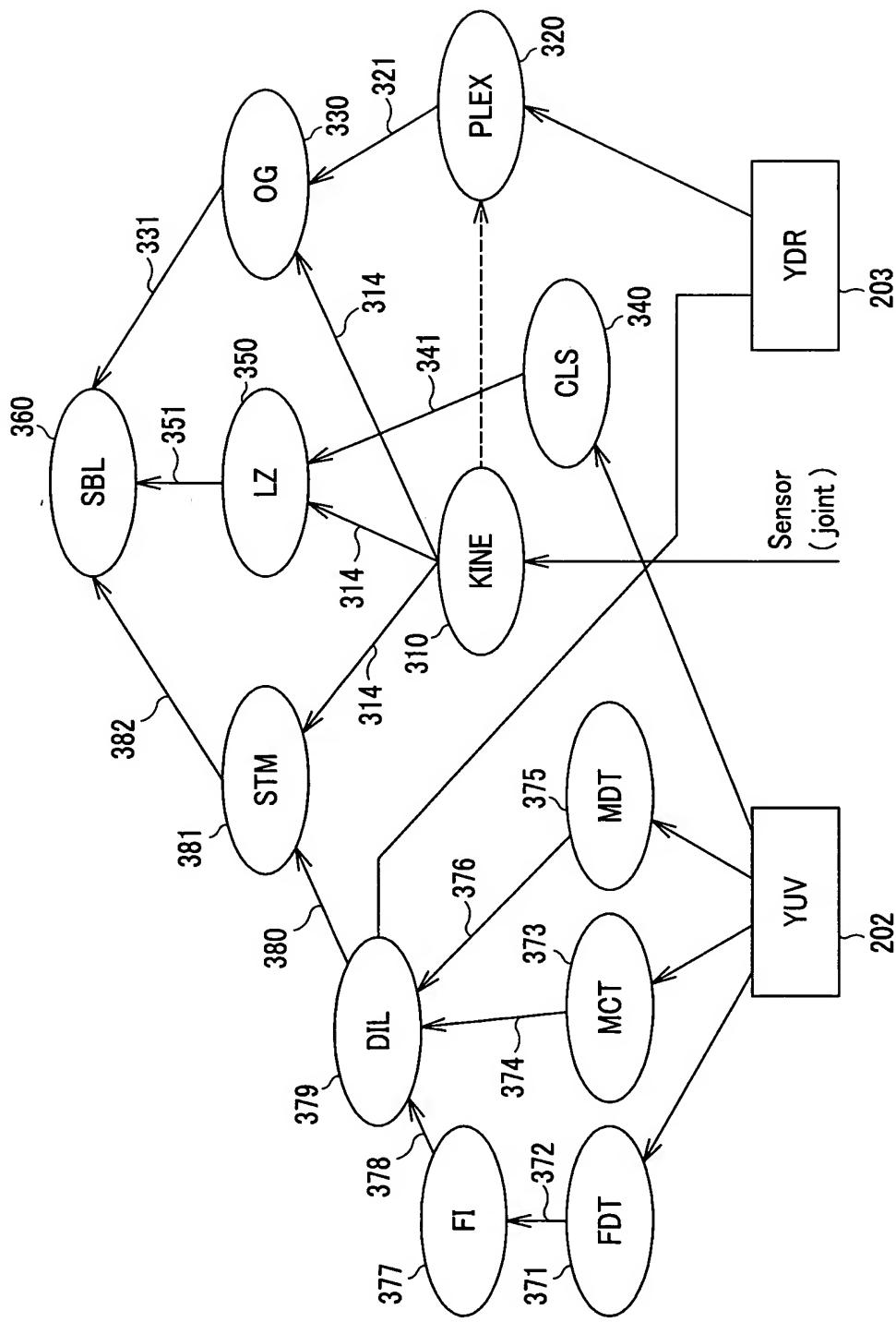


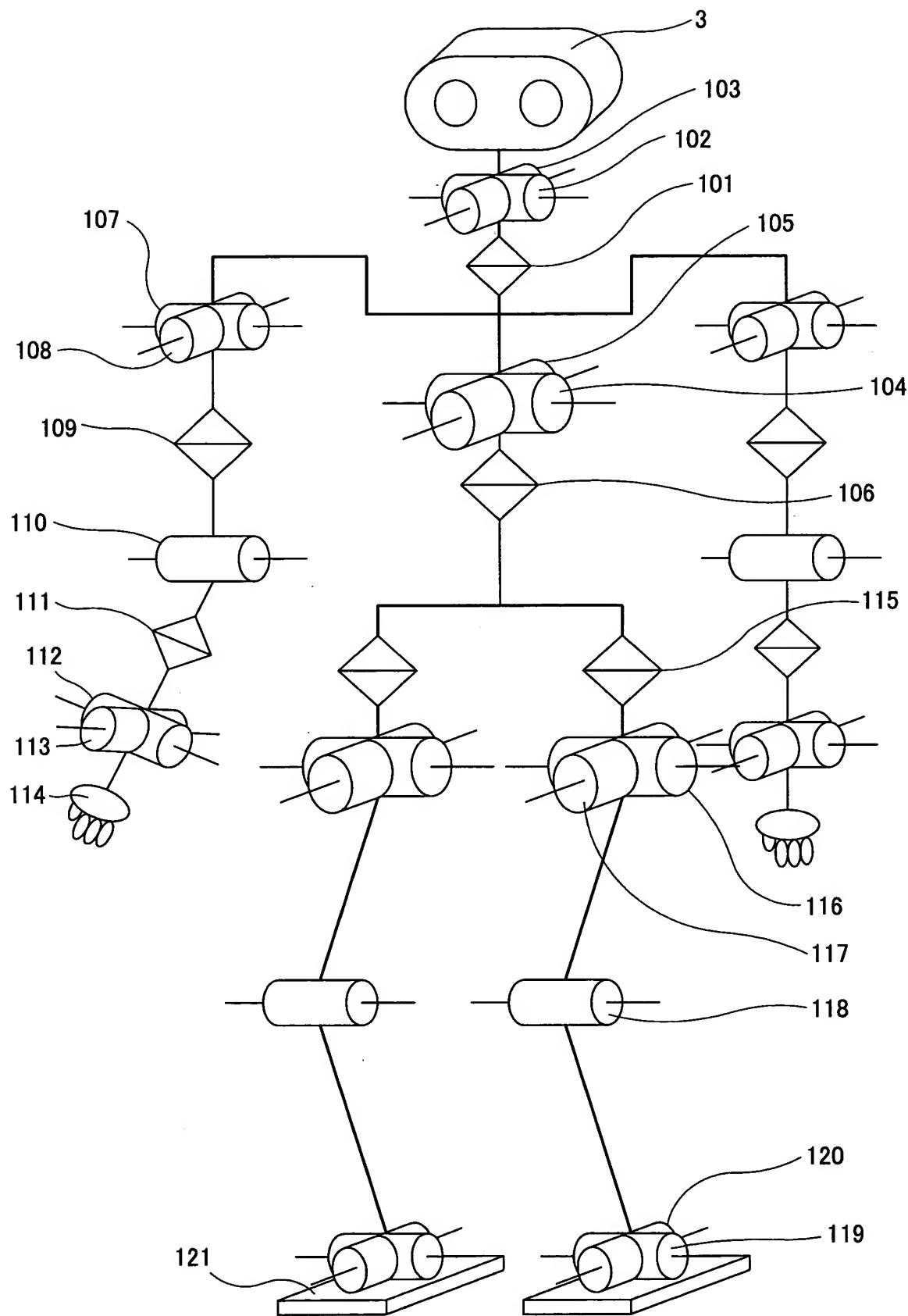
**FIG. 21**



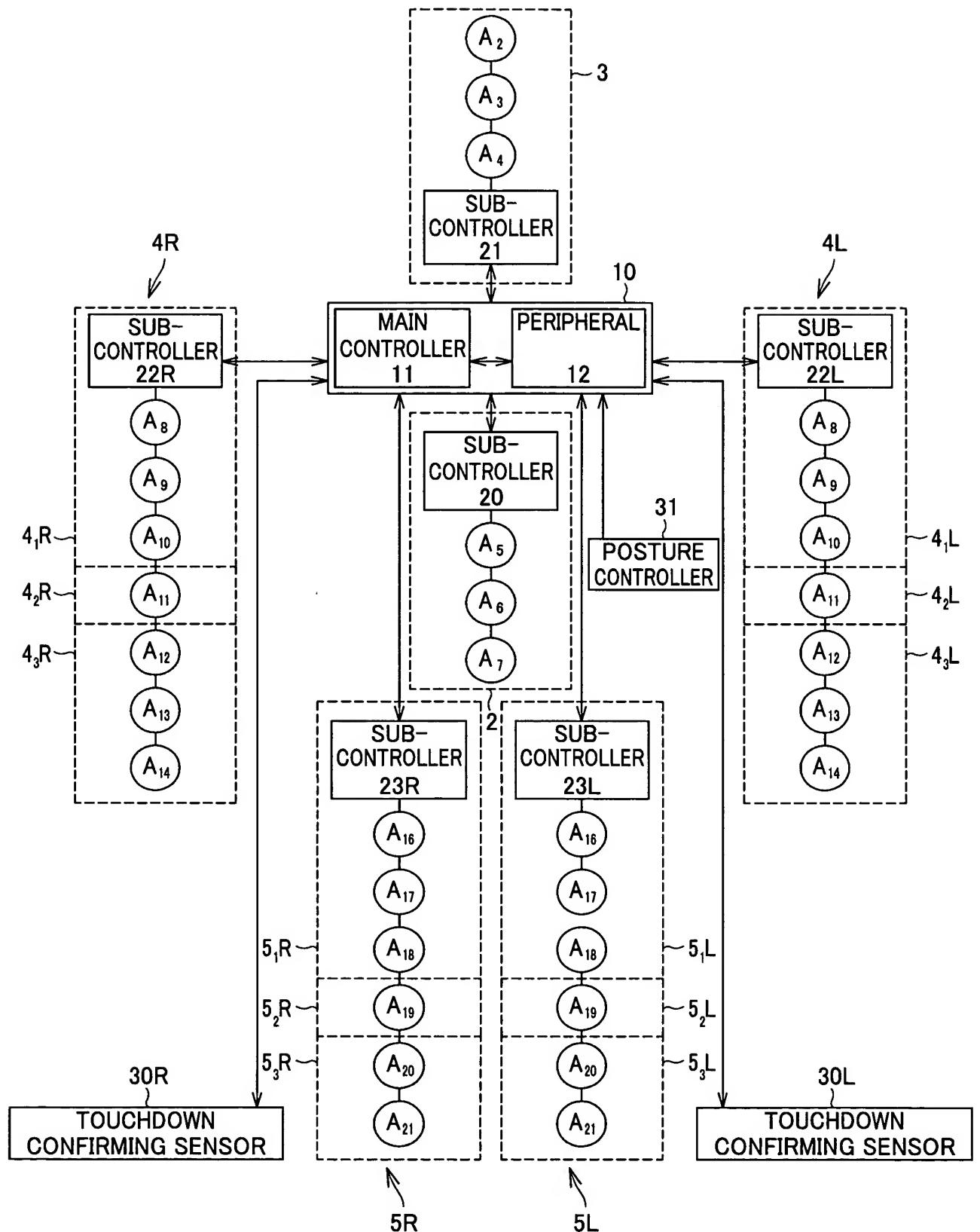
**FIG. 22**

**FIG.23**





**FIG. 24**



**FIG.25**

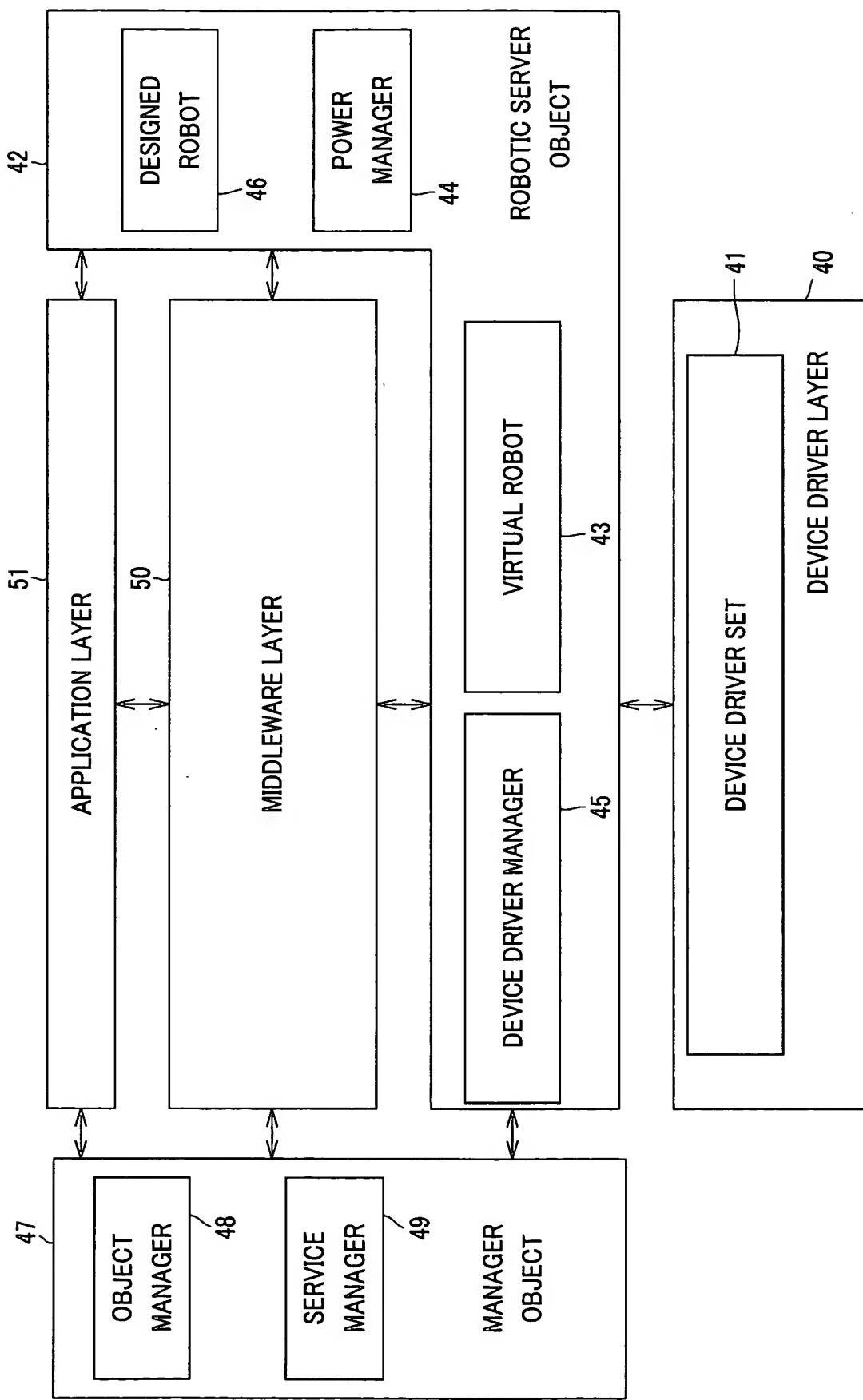
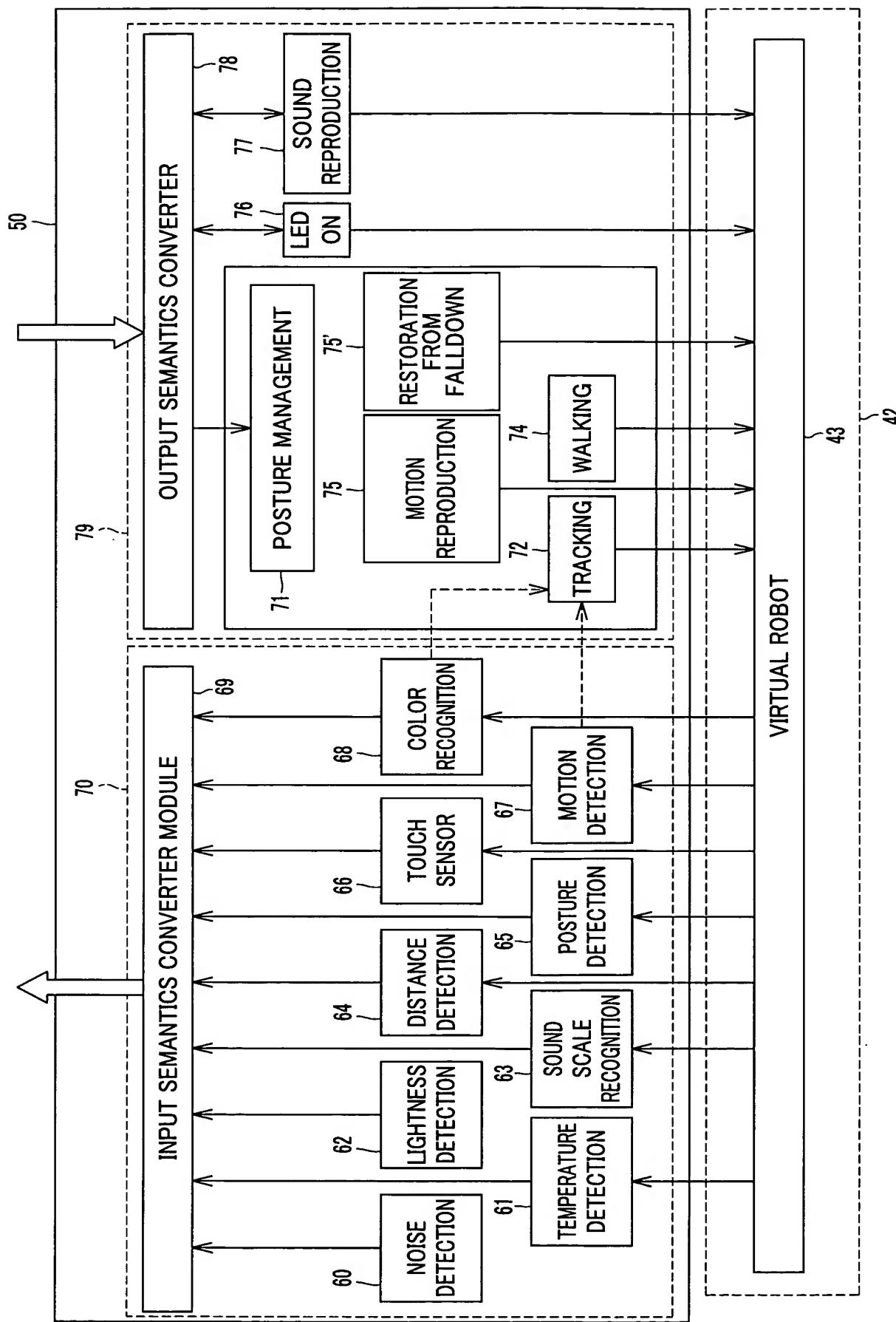
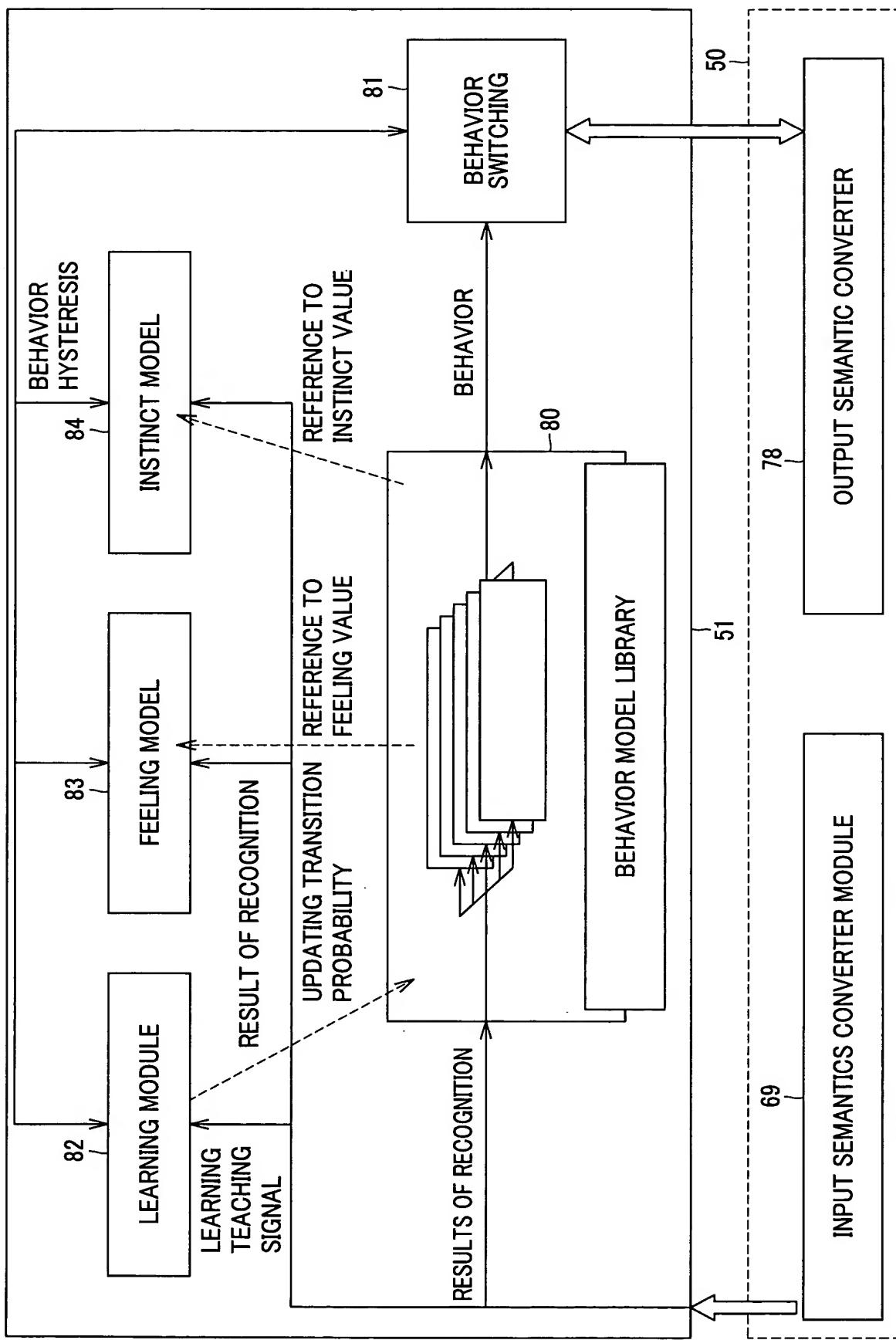
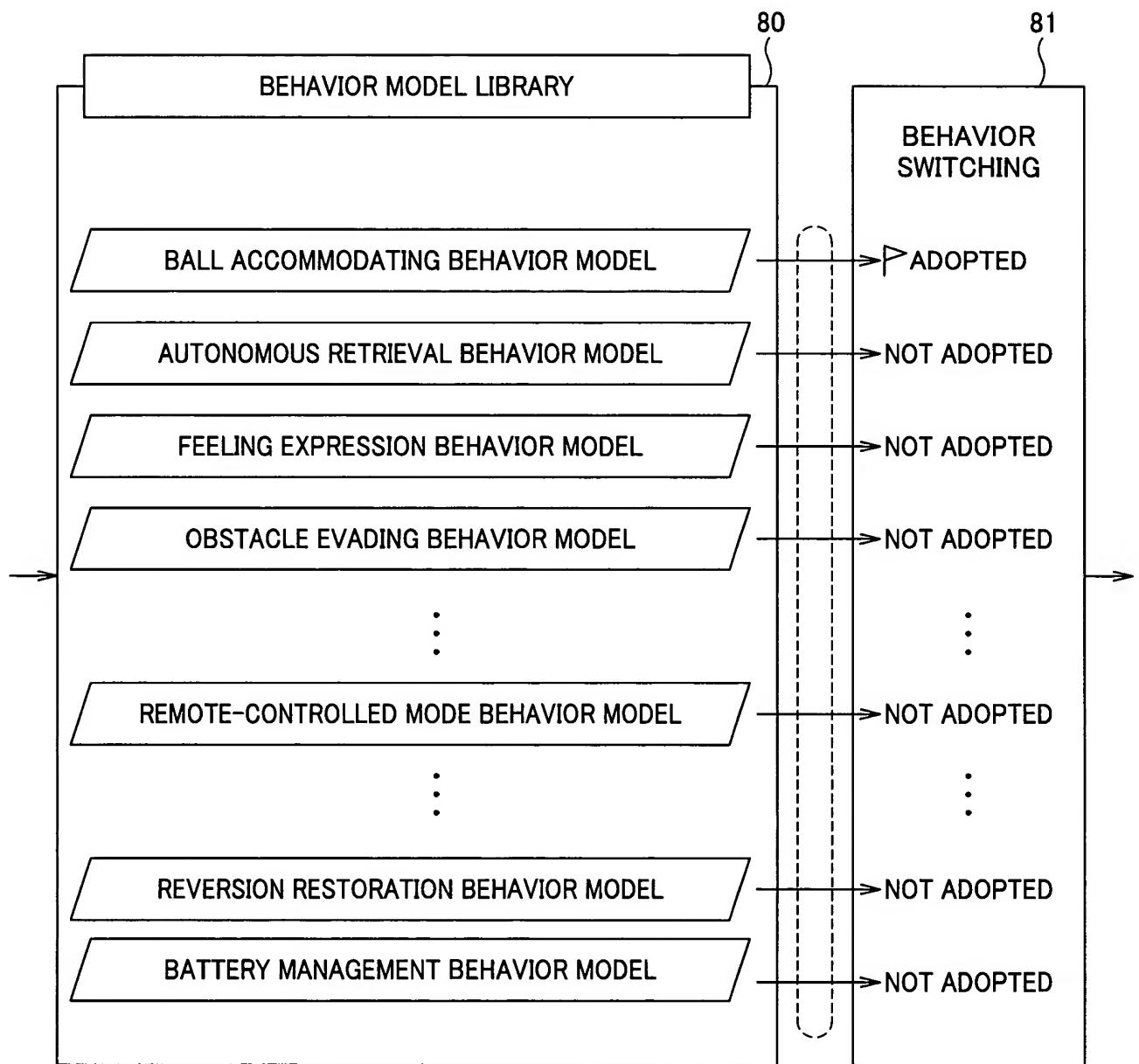


FIG. 26

**FIG.27**

**FIG.28**





**FIG.29**

**FIG. 30**

